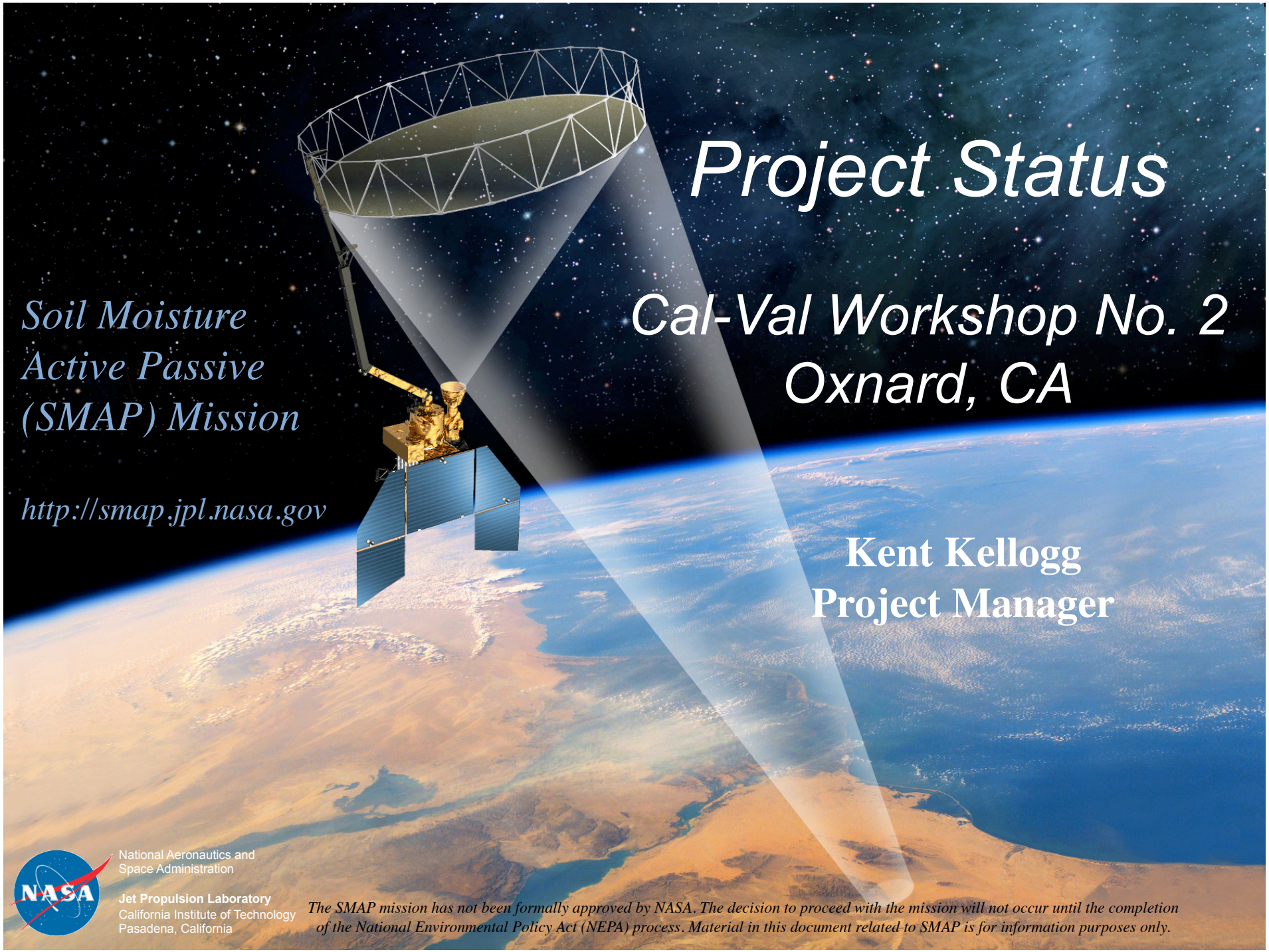
Project Status
Cal-Val Workshop No. 2
Oxnard, CA
Soil Moisture
Active Passive
(SMAP) Mission
http://smap.jpl.nasa.gov
Kent Kellogg
Project Manager
National Aeronautics and
Space Administration
Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California
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Project Status (1/2)

- Successfully conducted Instrument and Flight System PDRs (Nov, Dec, respectively)
- PDR and NASA Confirmation (KDP-C) (planned for March, June '11) are postponed pending NASA resolution of Project's funding profile and selection of launch services
  - NASA has authorized the Project to continue with detailed design and initial implementation activities to keep Project on track for an Oct '14 LRD while above items are being resolved
  - PDR and KPD-C are now tentatively planned for Oct '11 and Nov '11, respectively
  - No change to Project's planned CDR date in April '12
- FY11 budget resolution and President's FY12 budget request keeps SMAP on track for an Oct '14 launch
- Launch services selection process is underway; Project has requested a decision no later than end of May

Project Status (2/2)

- Engineering model developments are progressing at a brisk pace, we expect to complete engineering model fabrication next Fall, most testing completed ahead of Project CDR
- Flight manufacturing is planned to begin in about a year
- Most major contracts planned by Project are in place, remaining contracts will be in place by end of FY11
- Science data processing testbed has been expanded, is being well-used by algorithm developers
- Algorithm development is on track for critical NASA peer review in late 2011
- Applications outreach is being actively pursued
- Support agreements are in place for most Project support services (NASA ground stations, data distribution services)
  - Decision on Data Archive is still pending, expected shortly
- Discussing additional international ground station support (CSA, CONAE)

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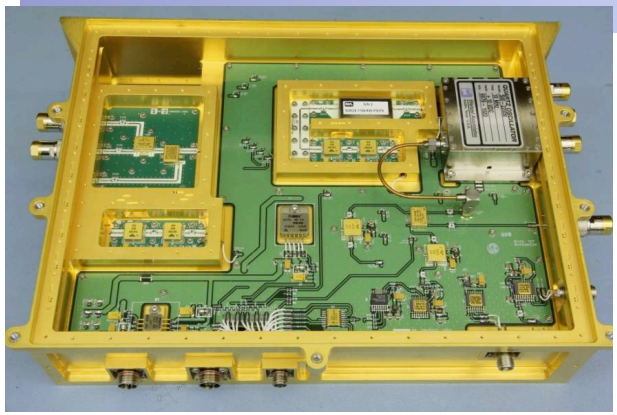
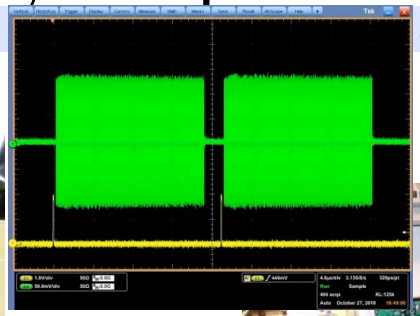
Radar RF (Low Power) Electronics Brassboard* testing is nearly complete

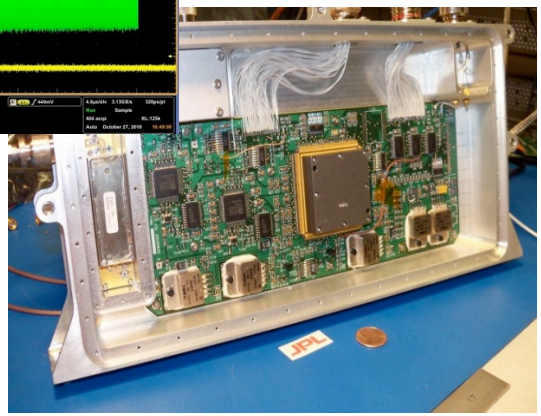


Synthesizer Brassboard assembled and in test.

RF-PDU assembled & in test



Two 15us sequential chirps



Chirp Generator

- All Radar RF Electronics Brassboard subassemblies are built and tested
- Thermal cycling over full qual-range revealed no performance issues
- Integrated assembly level testing now underway
- Delivery to Radar I&T by June is on schedule

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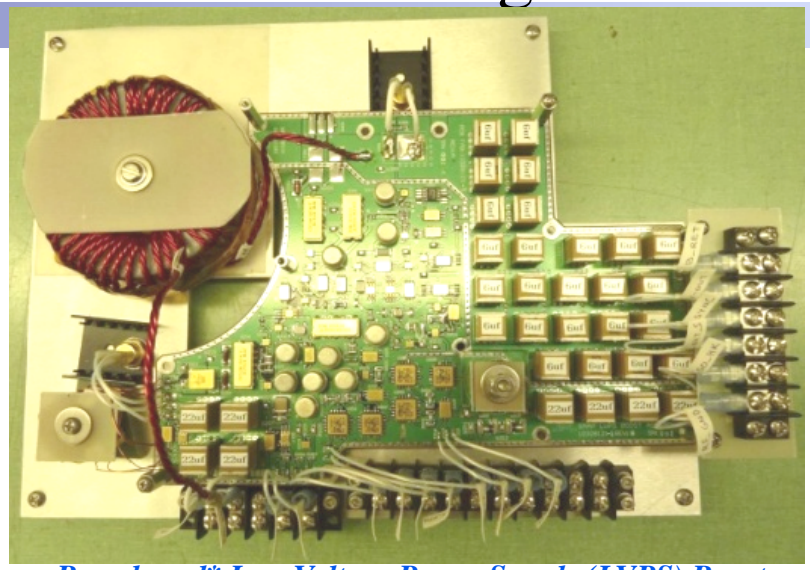
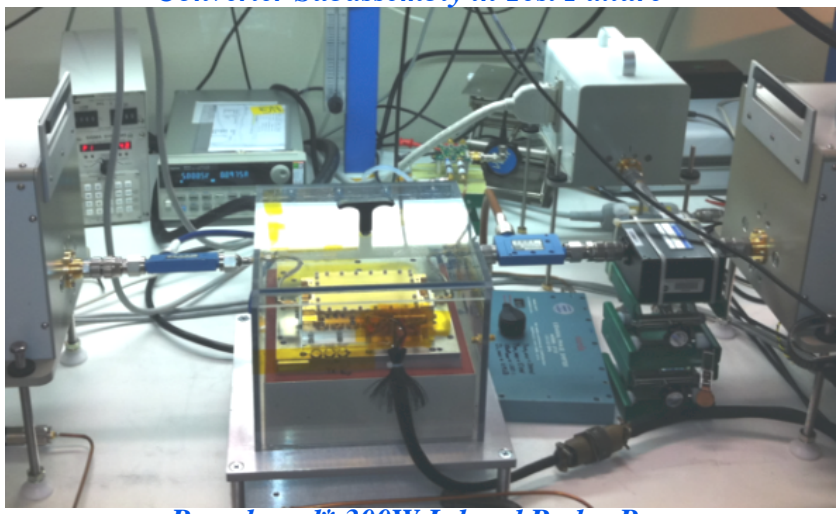
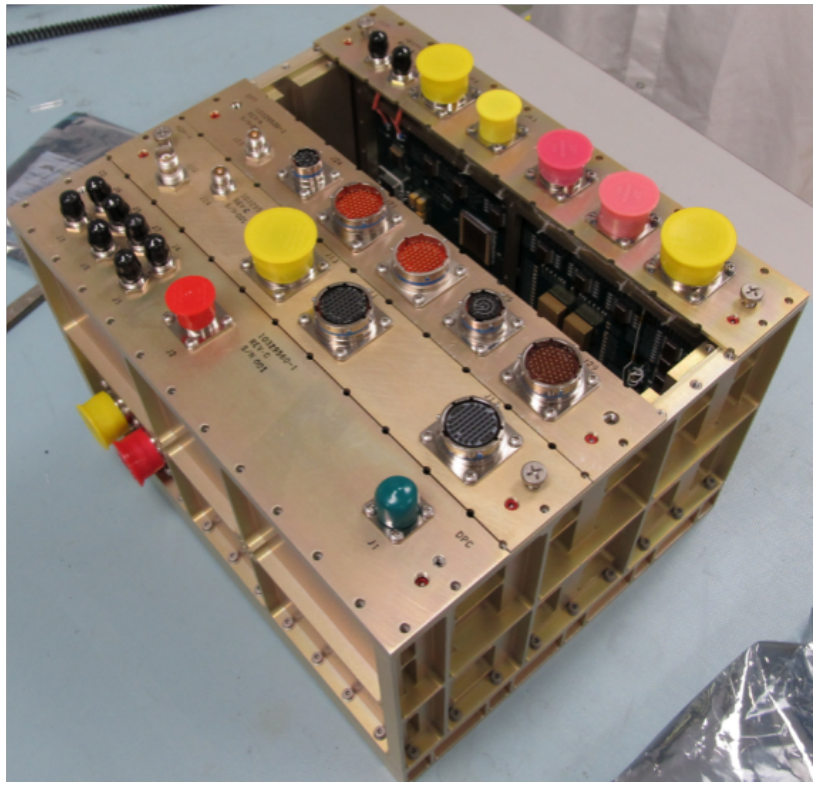
Radar Progress Continues to Go Very Well – High Power Amplifier is 'Catching Up!'



Brassboard Low Voltage Power Supply (LVPS) Boost Converter Subassembly in Test Fixture*



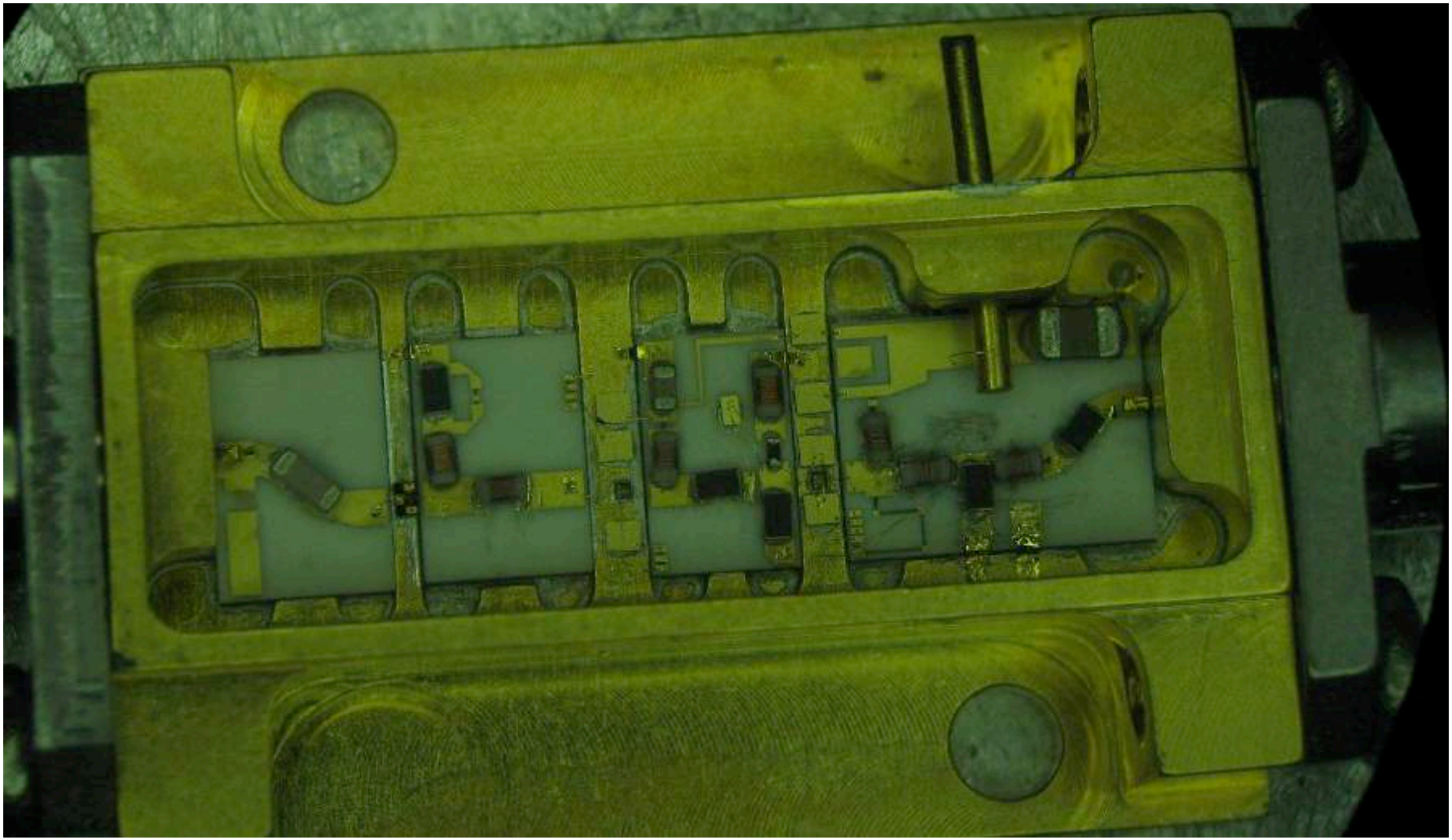
Brassboard 300W L-band Radar Power Amplifier Subassembly in Thermal Test*



(Mostly) Integrated Brassboard SAR Digital Electronics Assembly*

* *Note: Brassboards are defined at JPL as an intermediate level of fidelity between breadboards and full engineering models; however SMAP's brassboards are tending very close to EM fidelity*

Radiometer Prototype Hardware Starting to Coalesce



LNA Breadboard with filter (provided by Aeroflex)

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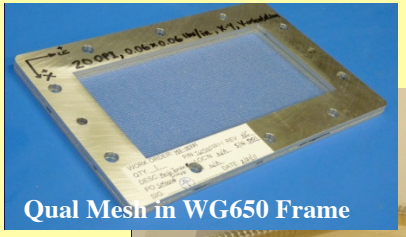
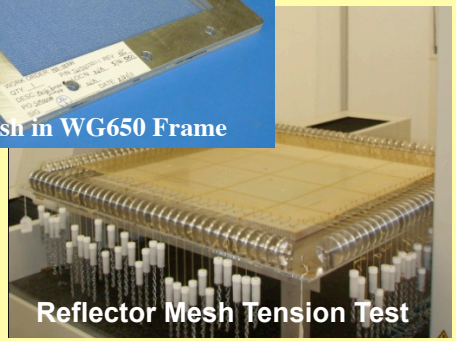
Instrument Mechanical Subsystems advance into detailed design

Reflector/Boom Assembly (Astro)

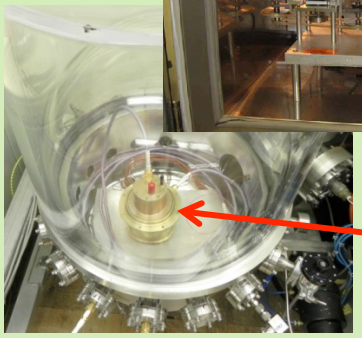




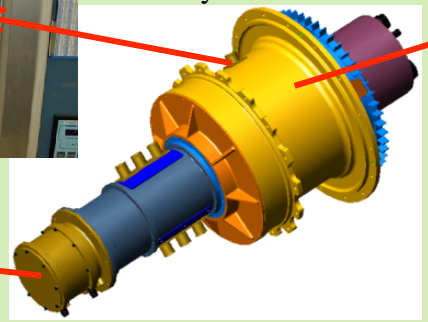
Reflector components qual-testing underway

Spin Subsystem (Boeing)

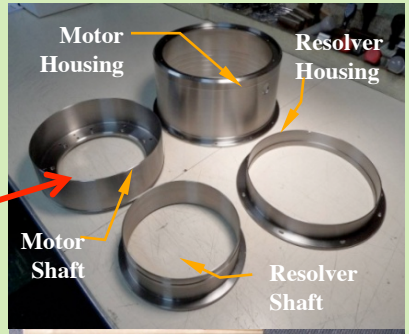
Bearing Life Testing underway



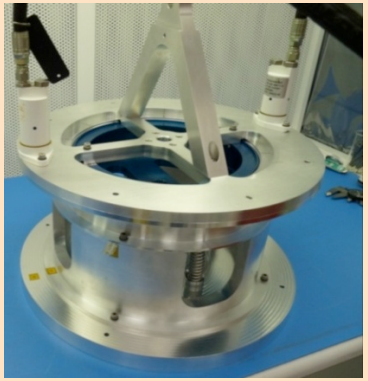
RF Rotary Joint Multipaction Testing



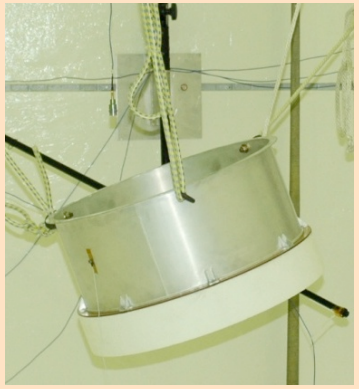
BAPTA flight components fabrication & qual test underway



Structures (JPL)



½ Scale Cone Clutch Assembly (CCA) Development Unit



Development Radome fabricated and acoustic testing completed

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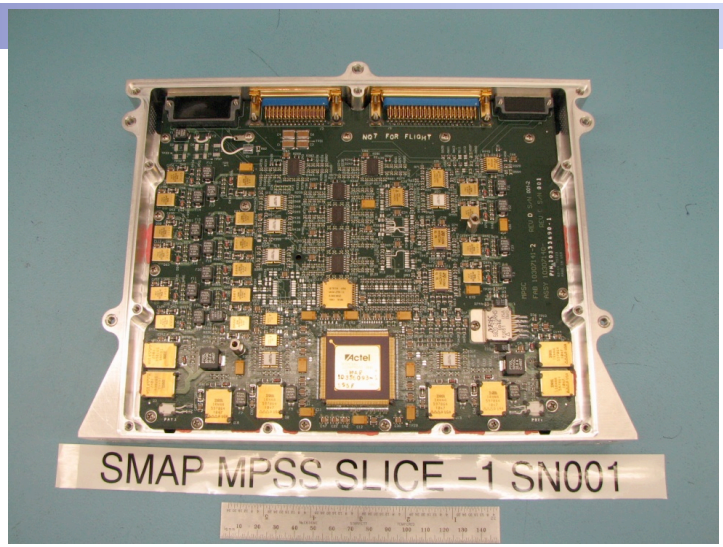
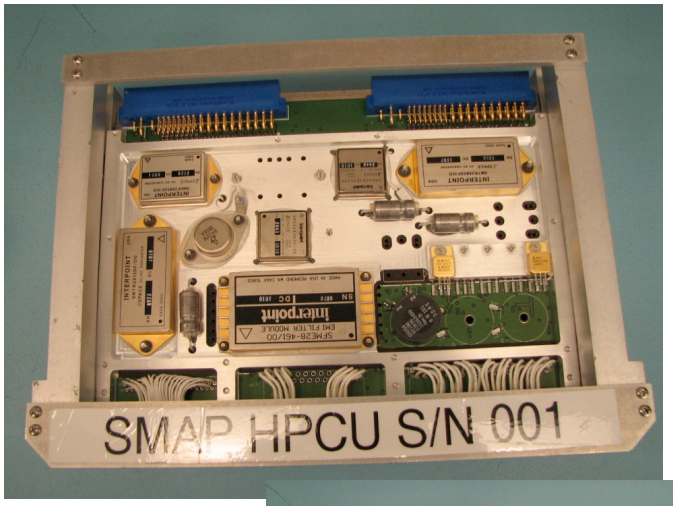
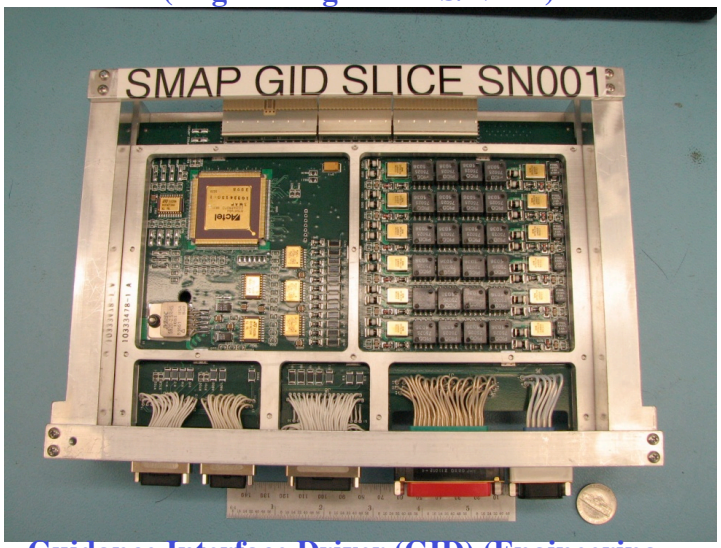
Power Subsystem Breadboard/EM Hardware Manufacturing, Testing Proceeding Briskly

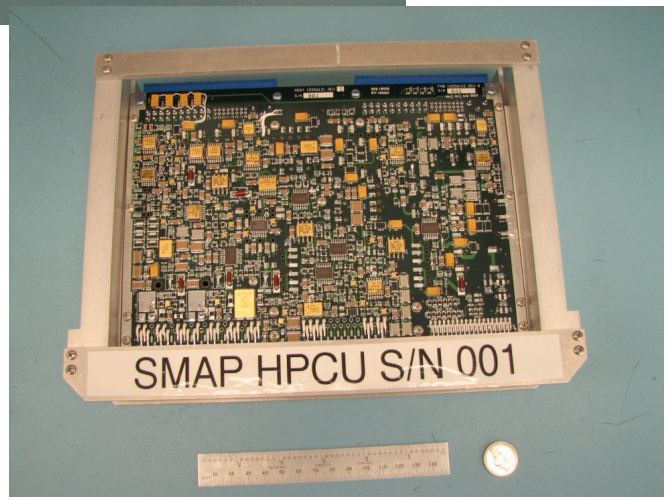


MSAP/MSL Power Switch Slice (MPSS) (Engineering Model S/N 001)





Guidance Interface Driver (GID) (Engineering Model S/N 001)



Housekeeping Power Converter Unit (HPCU) (Engineering Model S/N 001)

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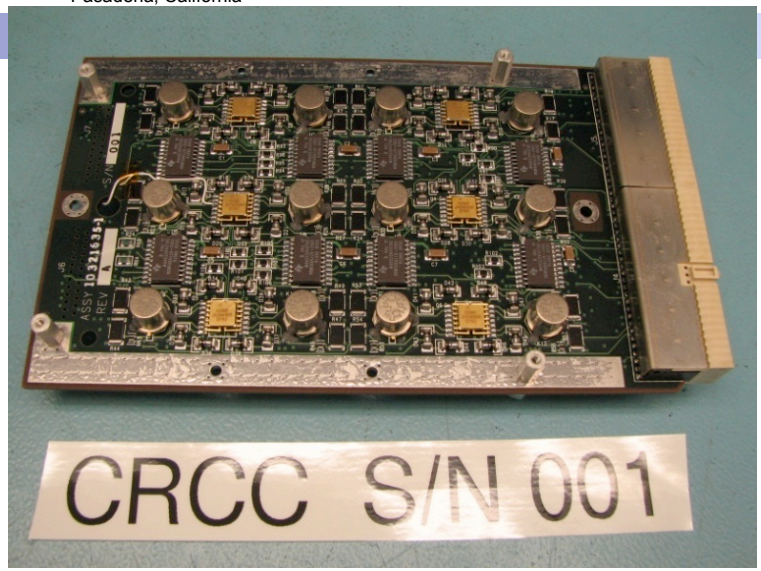
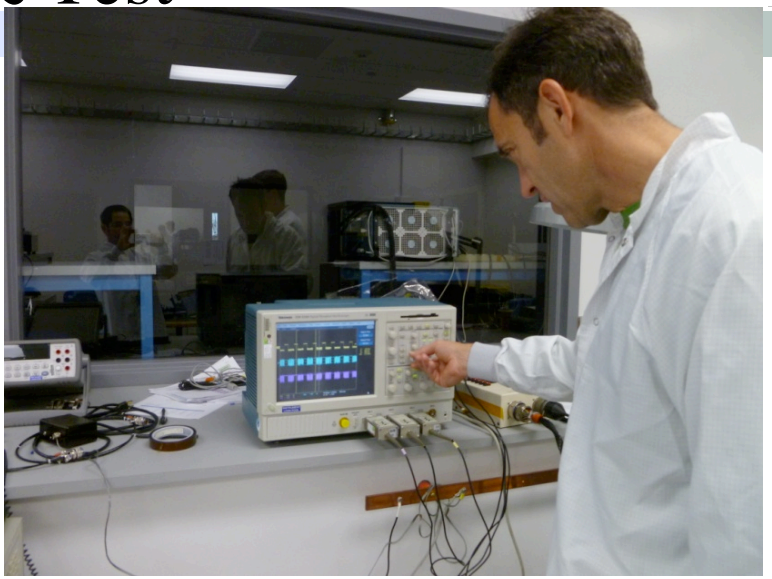
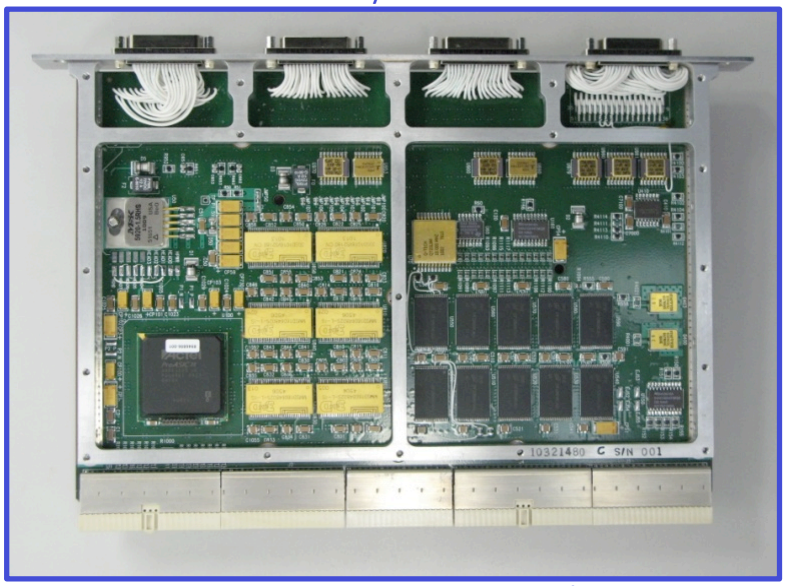
C&DH Engineering Model Well Into Fabrication & Test

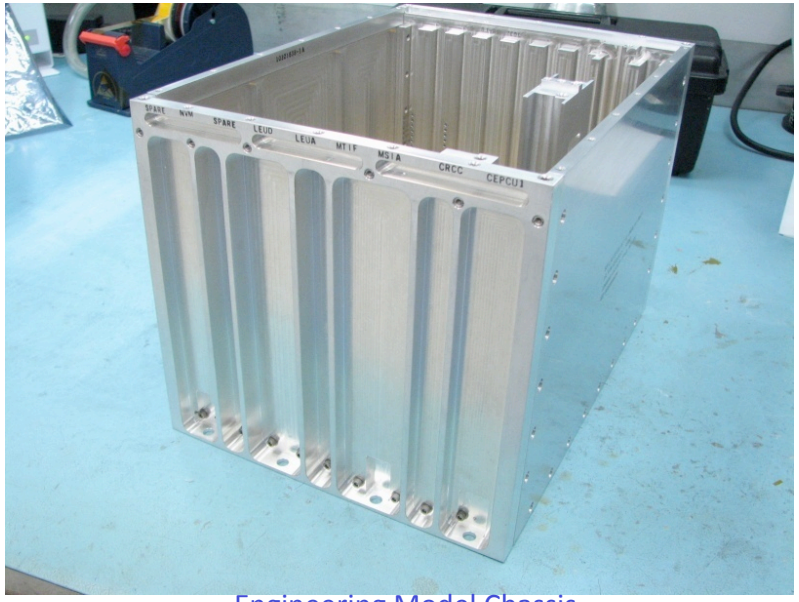


Critical Relay Control Card





128 GB Science Storage Board



Engineering Model Chassis

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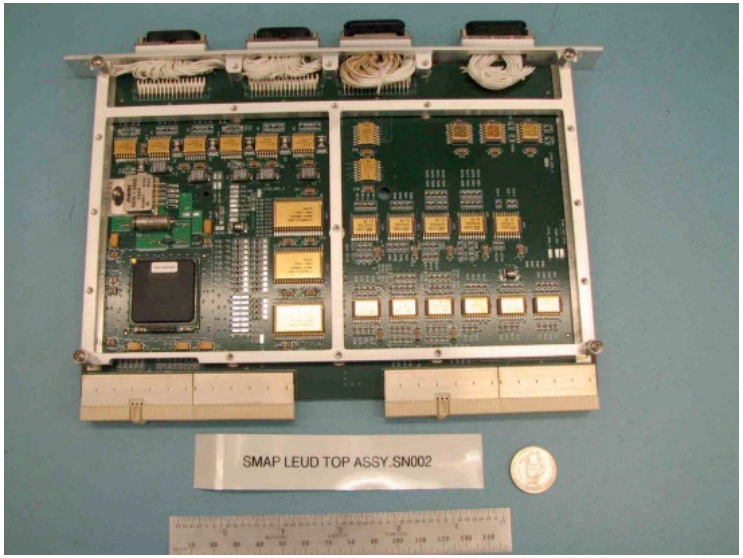
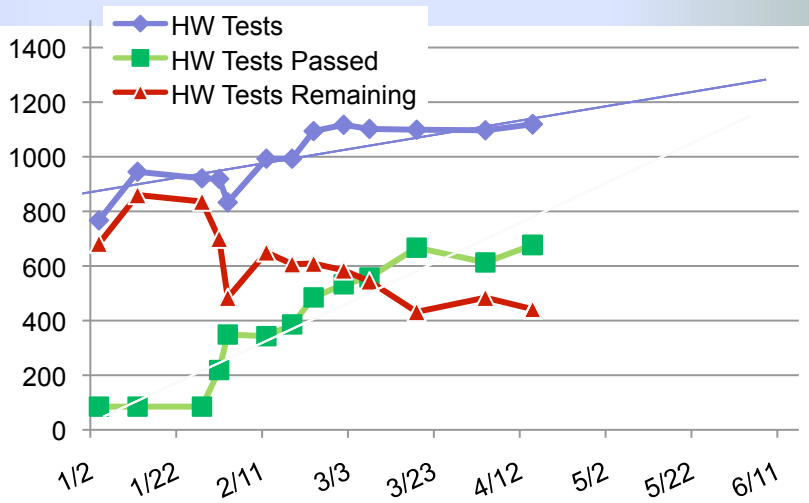
C&DH Breadboard Testing Proceeding Well

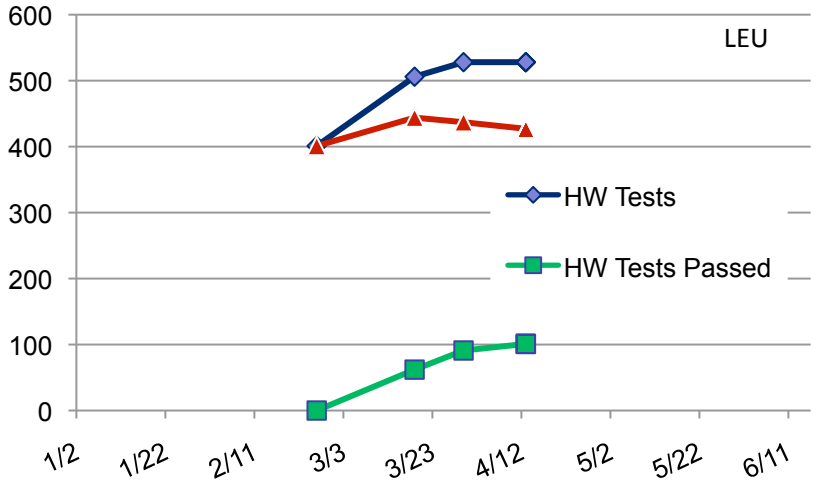
JPL Director for Earth Science & Technology inspects SMAP C&DH Lab and prototype hardware on April 13



Local Engineering Unit – Digital (LEU-D) Breadboard



Breadboard Non-Volatile (Science) Memory Board (128 GB) Testing V&V Status



Local Engineering Unit – Digital (LEU-D) Testing V&V Status

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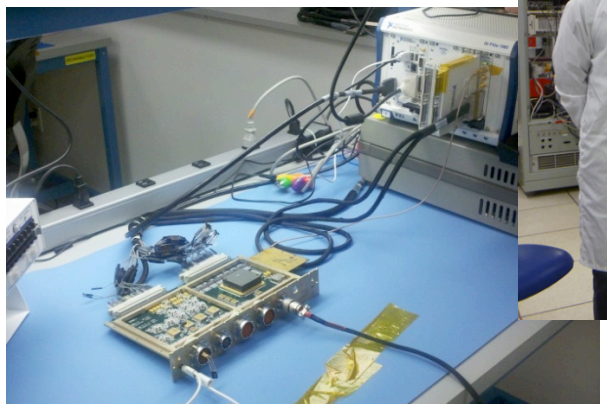
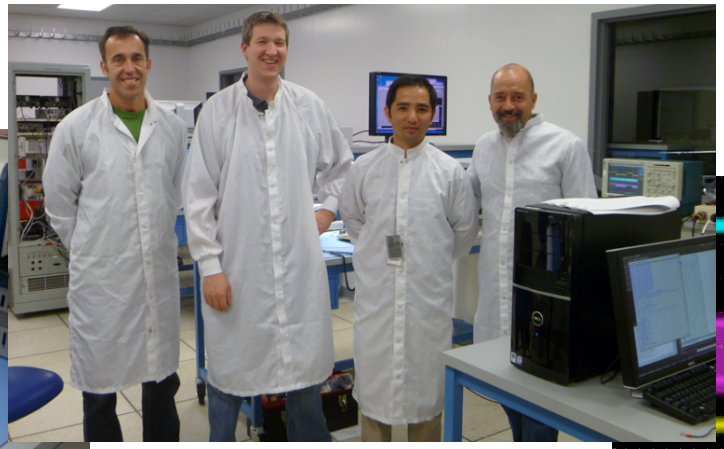
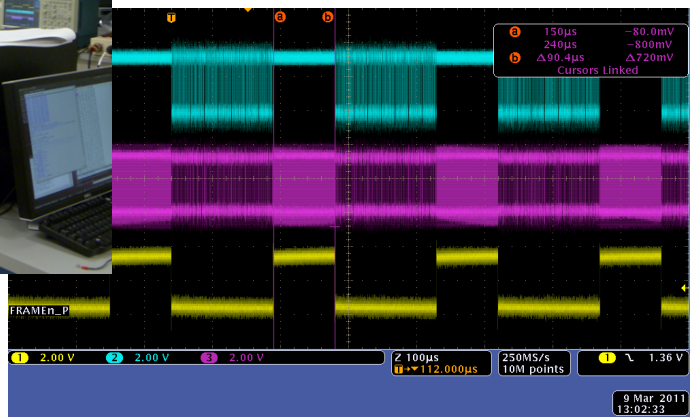
Radar / C&DH compatibility test demonstrates high-rate data interface





Radar Digital Data Formatter (DFT) Brassboard



Over 500 Mbytes of data was sent from SAR Data Formatter to NVM

C&DH NVM commercial chassis with NVM Breadboard, SFC & MTIF

- Demonstrated 40 Mbps data protocol has been implemented successfully
- Confirmed "science data" received in C&DH NVM SDRAM had expected byte ordering and frame-to-frame lengths and no dropped bits
- Frame Header information on the received SAR packets was reviewed and verified

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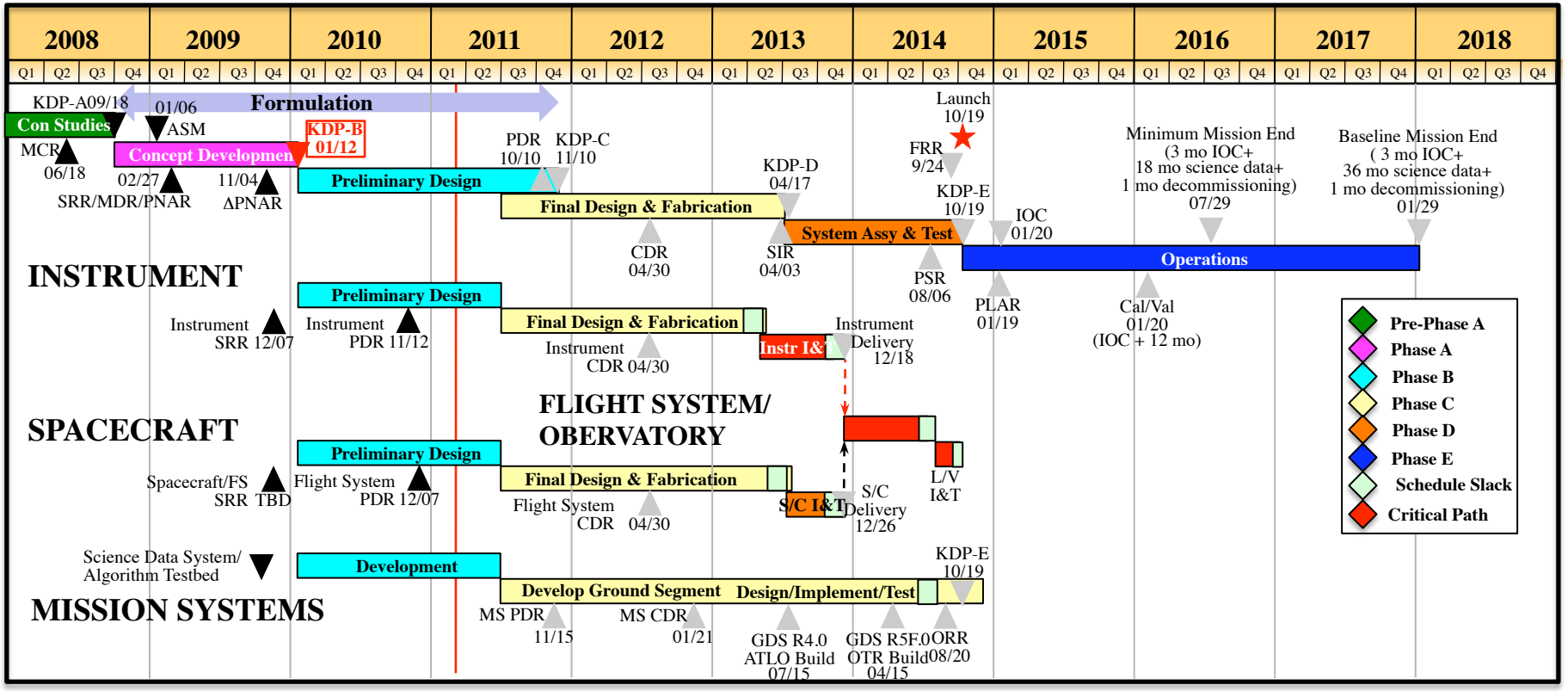
Schedule

Calendar Years



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